

4.7 TERRESTRIAL BIOLOGICAL RESOURCES

This section describes terrestrial biological resources in the vicinity of the proposed Project including local habitats, communities, and sensitive species and evaluates the impacts that implementation of the Project or its potential Alternatives may have on these resources.

This analysis focuses on terrestrial biological resources that could be affected by construction and operation of primary Project components, including operation of Wells 421-1 and 421-2. This analysis also briefly discusses area resources that could be affected by the operation of secondary Project components (existing facilities not proposed for modification) such as the operation of the EMT. For a full discussion of such resources, see the Draft EMT EIR.

This analysis is based on information from the California Natural Diversity Database, U.S. Fish and Wildlife Service, city of Goleta 2006 MND (06-MND-001), and Santa Barbara County 2001 MND (01-ND-34) and incorporates by reference the conclusions of the EMT EIR regarding area biological resources and the potential impacts on such resources associated with operation of the EMT and summarize these where appropriate.

4.7.1 Environmental Setting

The Project site is located west of the Ellwood-Devereux Open Space and Habitat area and is bordered to the north by the Sandpiper Golf Course. The undeveloped open space surrounding the Ellwood Mesa and Devereux Slough supports the largest complex of coastal ecosystems remaining in the urban area of the south coast of Santa Barbara County. Sensitive area habitats include native grasslands, vernal pools, riparian areas, coastal salt marsh and freshwater wetlands, coastal dunes, strand, and sage scrub. These sensitive habitats support a variety of rare plant and animal species which are discussed below. However, all of these habitats are well removed from the primary Project area, although many do border or are traversed by secondary Project components such as the EMT and Line 96. For more details on these habitats and associated species, see the EMT EIR. To the west of the Project area is Bell Canyon, which drains northwestern Goleta and coastal slopes of the Transverse Range. To the south of the site is the Santa Barbara Channel, which supports a variety of marine species and habitats. A discussion of area marine biological resources and impacts of the proposed Project on such resources can be found in Section 4.6, Marine Biological Resources.

Biological Communities

Upland Habitats

Native upland habitat in the vicinity of the Project area consists of southern coastal bluff scrub, which consists of dwarf shrubs, herbaceous perennials, and annuals; and may also include succulent species. It occurs on poor soils exposed to high salt- and moisture-content winds. Dominant species of this habitat in the area include Brewer's saltbush (*Atriplex lentiformis* ssp. *breweri*), lemonade berry (*Rhus integrifolia*), and seashore blight (*Suaeda californica* var. *taxifolia*) (CSLC 2006). Coyote bush (*Baccharis pilularis* spp. *consanguinea*) and prickly pear cactus (*Opuntia* sp.) were also noted in the area during a field visit. Since the shoreline area of the Project is armored with a seawall, southern dune habitats are absent from the immediate area of the Project. Therefore, southern coastal bluff scrub habitat begins at the upper boundary of the beach and extends to the bluff crest. Within this habitat, particularly in the vicinity of the seawall, giant reed (*Arundo donax*) has begun to colonize the area just above the armoring structure.

The area north and northeast of the Project above the bluff crest consists of the Sandpiper Golf Course and can be characterized as a developed area; however, the golf course vegetation does include species which are used by wildlife, including eucalyptus, coyote bush (*Baccharis*), and coast live oaks (*Quercus agrifolia*).

Wetland Habitats

Four wetlands are located in close proximity to the to the Project site. Three of these wetland areas are supported by seeps located along the toe of the bluff immediately adjacent to the project access road. The largest and most diverse of these is located east of the access road terminus and Well 421-2 and totals approximately 5,440 square feet. The dominant species in all of these wetland areas is saltgrass (*Distichlis spicata*). The larger wetland also supports cattail (*Typha domingensis*), and also exhibits rabbitsfoot grass (*Polypogon monspeliensis*), African brassbuttons (*Cotula coronopifolia*), and saltmarsh sandspurry (*Spergularia* sp.). The surface waters present in at least this larger wetland are sufficient to support breeding populations of Pacific tree frogs (*Hyla regilla*) and western toads (*Bufo boreas*), and as habitat for avian species.

A second wetland area is at Bell Canyon Creek, located to the west of the Project site, approximately 100 feet west of the access road (Figure 4.7-1). Portions of the marsh nearest the beach outlet function as a saltmarsh and exhibit typical

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**FIGURE 4.7-1. TERRESTRIAL BIOLOGICAL RESOURCES IN THE PROJECT
VICINITY**

southern coastal salt marsh vegetation including saltgrass (*Distichlis*), pickleweed (*Salicornia virginica*), and the non-native giant reed (*Arundo donax*). Limited areas of dune habitat are also present, especially along the western mouth of the canyon.

Upper reaches of Bell Canyon in the vicinity of the Project function as coastal freshwater marsh, riparian scrub, or riparian forest. In the immediate vicinity of the Project site vegetation includes Brewer's saltbush (*Atriplex lentiformis* ssp. *breweri*) and bush sunflower (*Encelia californica*). The eastern bank of the canyon has also been used as an oak woodland mitigation site for impacts due to the construction of the Bacara Resort, which is located west of the canyon.

Two other significant coastal estuaries exist in the project vicinity. Tecolote Creek, located approximately 0.25 miles east of the project site, is characterized by habitats and species similar to those found at Bell Canyon Creek. Tecolote Creek exhibits the same type of small coastal estuary fronted by a small dune area, with limited open water and salt marsh habitat, which transition into freshwater and riparian areas away from the beach.

To the east, approximately 2 miles from the primary project site, lies regionally significant Devereux Slough coastal salt marsh. The Devereux Slough and surrounding areas support a variety of wetland habitats and associated rare and endangered species and is fronted by the largest coastal dune complex on the south coast of Santa Barbara County. In recognition of its ecological significance, the Devereux Slough and portions of the surrounding habitats have been incorporated into the UCSB's Natural Land and Water Reserve system as the Coal Oil Point Ecological Reserve. See the Draft EMT EIR for a complete discussion of these habitats.

Special Status Species

Special status species data was collected from a variety of sources, including the California Natural Diversity Database (CDFG 2006), California Native Plant Society's (CNPS's) Inventory of Rare and Endangered Plants of California (2001), and available literature for information on the presence and distribution of State or Federal endangered species.

Special Status Plant Species

No Federal- or State-listed rare, threatened, or endangered plant species are known to occur within the Project area; however, several rare, threatened, or endangered plant

- 1 species are reported or have been recorded to occur in the vicinity of the Project site,
2 and are listed in Table 4.7-1.

3 **Table 4.7-1. Sensitive Plants that are Known or Have the Potential to Occur in**
4 **the Vicinity of the Project Site**

Species	Status ¹	Notes/Occurrence
<i>Atriplex coulteri</i> Coulter's saltbush	List 1B	Spreading perennial, occurs on coastal bluffs. Reported to occur on ocean bluffs near UCSB.
<i>Atriplex serenana</i> ssp. <i> davidsonii</i> Davidson's saltbush	List 1B	Annual herb, occurs in coastal bluff scrub. May be extirpated from Santa Barbara County, historical occurrence at UCSB.
<i>Baccharis plummerae</i> ssp. <i> plummerae</i> Plummer's baccharis	List 4	Shrub, may occur in coastal scrub. Reported to occur at UCSB lagoon and Coal Oil Point Reserve.
<i>Calystegia sepium</i> ssp. <i> binghamiae</i> Santa Barbara morning-glory	List 1A	Perennial herb, occurs in marshes and swamps. Presumed extinct, noted to have historically occurred in the Project area in a local lagoon.
<i>Centromadia</i> (= <i>Hemizonia</i>) <i> parryi</i> ssp. <i> australis</i> Southern tarplant	List 1B	Annual herb, occurs in moist places such as margins of marshes and mesic grasslands. This species is present in the grassland habitat south of the EMT (City of Goleta 2004).
<i>Horkelia cuneata</i> ssp. <i> puberula</i> Mesa Horkelia	List 1B	Perennial herb, may occur in sandy/gravelly coastal shrub habitat; listed within the Dos Pueblos Canyon USGS grid (CNPS 2006); federally endangered; not known to occur at the Project site.
<i>Lasthenia conjugens</i> Contra Costa goldfields	List 1B	Annual herb, occurs in Isla Vista open space and vernal pool reserves; not known to occur in area
<i>Lonicera subspicata</i> ssp. <i> subspicata</i> Santa Barbara honeysuckle	List 1B	Shrub, occurs in chaparral and coastal scrub. Known to occur at scattered locations in the Project vicinity.
<i>Malacothrix incana</i> Dunedelion	List 4	Perennial herb, occurs in coastal dunes and coastal scrub. Reported from dunes near Goleta Slough. Not known to occur in Project area.
<i>Malacothrix saxatilis</i> var. <i> saxatilis</i> Cliff malacothrix	List 4	Perennial herb, occurs in coastal bluff scrub and coastal scrub. Known to occur in the Project vicinity.
<i>Scrophularia atrata</i> Black-flowered figwort	List 1B	Perennial herb, occurs in chaparral, coastal scrub, coastal dunes and riparian scrub. Reported from dunes near Devereux Slough and Coal Oil Point.
<i>Suaeda esteroa</i> Estuary seablite	List 1B	Perennial herb, occurs in coastal salt marshes. Historically reported from Goleta Slough near the beach.
<i>Suaeda taxifolia</i> Woolly seablite	List 4	Shrub, occurs on margins of salt marshes and in coastal scrub and coastal bluff scrub. Present on the Ellwood Mesa and West Campus Bluffs Nature Park.

¹ California Native Plant Society status codes:

List 1A Presumed extinct in California

List 1B Rare, threatened, or endangered in California and elsewhere

List 4 Plants of limited distribution

Sources: CSLC 2006; CNPS 2006.

Of the plant species listed in Table 4.7-1, only the southern tarplant (*Centromadia* [=*Hemizonia*] *parryi* ssp. *australis*) is known to occur in the immediate vicinity of the Project. Southern tarplant is an annual herb that gemminates in the spring and blooms from June to November. It is a member of the sunflower family and has small, yellow flowers and green, bristly, spine-tipped leaves. The largest local population of this species is reported to occur within the EMT lease boundary (CSLC 2006).

Avian Special Status Species

A number of avian special status species inhabit the Project area, including the Western Snowy Plover (*Charadrius alexandrinus nivosus*), Cooper's Hawk (*Accipiter cooperii*), Turkey Vultures (*Cathartes aura*), and Kites (*Elanus leucurus*) (City of Goleta 2004). The California Natural Diversity Database (CNDDB) also lists the Ferruginous Hawk (*Buteo regalis*), a State-listed species of concern, within the Dos Pueblos Canyon USGS grid. These individual species, as well as other potentially occurring special status species, are further discussed below.

Western Snowy Plover. The Western Snowy Plover (*Charadrius alexandrinus nivosus*) was listed by the USFWS as threatened on March 5, 1993. Critical habitat was designated for this species in 1999 and a draft recovery plan for the Western Snowy Plover is available. A revised version of critical habitat has been proposed for the species which includes a series of beaches along the Pacific coastline from Washington to Southern California, and includes beach habitat along the western side of Coal Oil Point (CSLC 2006).

The Western Snowy Plover breeds on the Pacific coast from southern Washington to southern Baja California, Mexico, and in interior areas of Oregon, California, Nevada, Utah, New Mexico, Colorado, Kansas, Oklahoma, and north-central Texas, as well as coastal areas of Texas and possibly northeastern Mexico. The Pacific coast population of the Western Snowy Plover is genetically isolated from Western Snowy Plovers breeding in the interior. The Pacific coast population of the Western Snowy Plover is defined as those individuals that nest adjacent to or near tidal waters, and includes all nesting colonies on the mainland coast, peninsulas, offshore islands, adjacent bays, and estuaries. The coastal population of the Western Snowy Plover consists of both resident and migratory birds; some birds winter in the same areas used for breeding (CSLC 2006). Migratory individuals of the coastal Western Snowy Plover travel either north or south within their coastal range.

1 The Western Snowy Plover forages primarily in wet sand at the beach-surf interface and
2 feeds on marine worms, small crustaceans, and insects. This species is most likely to
3 nest in shallow depressions on undisturbed, flat areas with loose substrate, such as
4 sandy beaches and dried mudflats along the California coast. Normally, two to three
5 eggs are laid and incubated by both sexes, and hatch in 25 to 30 days. Hatchlings
6 fledge at about 31 days. The breeding season for this species can extend from mid-
7 March through mid-September.

8 The decline in the Western Snowy Plover population is attributed primarily to human
9 disturbance, predation, and loss of nesting habitat to encroachment of introduced
10 European beachgrass (*Ammophila arenaria*), and urban development (CSLC 2006).

11 Devereux Beach is included as a critical habitat unit for 3.1 miles of beach along Coal
12 Oil Point, to the east of the Project site. Beginning at the western limit of Isla Vista
13 County Park, the critical habitat unit follows the beach around Coal Oil Point to the
14 beach adjacent to the end of Santa Barbara Shores Drive and covers a total of 36 acres
15 (CSLC 2006). Within Coal Oil Point Reserve, the mouth of the Devereux Slough is
16 overwintering and breeding habitat for the Western Snowy Plover (City of Goleta et al.
17 2004). The wintering plover population has reached a maximum of 406 individuals in
18 2003. The number of breeding pairs has reached a maximum of 26 in 2004 (CSLC
19 2006). Management efforts to protect these plovers include the installation of signage
20 and fences delineating protected areas to limit impacts from beach use on this sensitive
21 species.

22 **Belding's Savannah Sparrow.** Belding's Savannah Sparrows are non-migratory, year-
23 round residents of coastal salt marshes from Santa Barbara County south into Baja
24 California, Mexico. Their wintering habitat may also include upland habitats. As with
25 other coastal marsh species, development along Southern California's coastline has
26 eliminated much of the sparrow's habitat. Many of the high tidal marsh areas utilized by
27 this species for nesting have been diked or filled for houses, roads, and other uses. In
28 response to a decline in populations and habitat fragmentation, the Belding's Savannah
29 Sparrow (*Passerculus sandwichensis beldingi*) was listed as endangered under the
30 CESA on January 10, 1974; in 1986, a survey of 27 California marsh areas found
31 approximately 2,274 pairs of Belding's Savannah Sparrows. Approximately 45 percent
32 of the individuals are located on U.S. Navy lands and in the Tijuana Estuary National
33 Wildlife Refuge (CSLC 2006).

1 Belding's Savannah Sparrows feed on sand flies and insects found on mudflats,
2 beaches and coastal vegetation. The breeding season ranges from February through
3 September, with nesting usually occurring from mid-March through early July. Pairs
4 may have multiple clutches in a breeding season. They nest in pickleweed, just above
5 the high tide line, and have also been observed to nest in salt grass. A concealed cup
6 nest is constructed, usually with its rim flush to the ground. Belding's Savannah
7 Sparrows have been observed on the Ellwood Mesa and within the Goleta Slough
8 (CSLC 2006). Territorial pairs and adults with fledglings have been observed in salt
9 marsh vegetation around Devereux Slough since the spring of 1990 (City of Goleta
10 2004). There is potential for Belding's Savannah Sparrows to occur in the Bell Canyon
11 Creek habitat.

12 **Raptors.** Due to the presence of grassland habitat at Ellwood Mesa and open space at
13 the Sandpiper Golf Course, numerous raptor species have been observed in the vicinity
14 of the proposed Project. Cooper's Hawk (*Accipiter cooperi*, a California species of
15 special concern) and White-Tailed Kites (*Elanus leucurus*, a Federal species of concern
16 and California fully protected species) are species which have been documented to
17 occur in the vicinity of the Project site (City of Goleta 2004). Three White-Tailed Kite
18 nesting sites have been identified in the eucalyptus and cypress trees bordering the
19 EMT and two within eucalyptus windbreaks immediately to the west of the facility (City
20 of Goleta 2004). Kites nesting in the area utilize all open, undeveloped habitat areas
21 surrounding the EMT as primary foraging territory (City of Goleta 2004).

22 Turkey Vulture roosting sites (which are listed as "an ecological community of great
23 interest" in the county Comprehensive Plan [Santa Barbara County 2002]), and nesting
24 sites of other raptors have also been observed in the area. Nests and breeding sites of
25 these species (and others) are protected under the Migratory Bird Treaty Act (MBTA).
26 Lands near to the Project area include large eucalyptus trees which may be used by
27 these species for reproduction. As such, trees would be protected from disruption if
28 breeding or nesting activities occurred in them during the breeding season.

29 **California Brown Pelican.** The California Brown Pelican (*Pelecanus occidentalis*
30 *californicus*) was federally listed as endangered in 1970, California State-listed as
31 endangered in 1971, and classified by the CDFG as a Fully Protected Species. Brown
32 pelicans are large fish-eating birds found in saltwater habitats along the California
33 coastline. They catch fish by diving, open-mouthed, from moderate heights.

1 California Brown Pelicans are regularly observed along the coastline near Coal Oil Point
2 and may use the well platforms for roosting on a transient basis. Along the Santa
3 Barbara County coast, numbers of California Brown Pelicans are highest in July and
4 lowest in late winter and early spring (CSLC 2006).

5 **Light-footed Clapper Rail.** With fewer than 400 breeding pairs left in the wild, the
6 Light-footed Clapper Rail (*Rallus longirostris levipes*) is one of the most endangered
7 birds in California. The decline of the Light-footed Clapper Rail is believed to be directly
8 related to the degradation and destruction of coastal salt marsh habitat. The Light-
9 footed Clapper Rail was last documented in the Goleta Slough marshes in the 1960s
10 and in Devereux Slough during the 1940s (Lehman 1994). It is considered a rare
11 migrant and unlikely to occur in the Project area due to lack of suitable habitat and
12 extreme rarity.

13 **California Least Tern.** The California Least Tern (*Sterna antillarum browni*) was
14 federally listed as endangered in 1970 and State-listed in 1971. This migratory species
15 is found along the Pacific Coast of California, from San Francisco southward to Baja
16 California. Populations are localized and becoming increasingly fragmented as coastal
17 development progresses, although critical habitat has not been designated for this
18 species.

19 The California Least Tern generally arrives in nesting areas in mid-April to early May.
20 Pair bonds may form before or immediately upon arrival with well-defined courtship
21 patterns. Nest locations are usually undisturbed open sand, dirt, or dried mud close to
22 estuaries or a dependable food supply. California Least Terns are colonial, creating
23 loose aggregations of nests approximately 10 feet apart with one to four eggs laid in
24 small depressions. California Least Terns raise only one brood successfully during
25 each breeding season (CSLC 2006). The California Least Tern feeds exclusively on
26 fish, primarily in shallow estuaries, lagoons and near shore ocean waters less than 60
27 feet deep.

28 The dunes and beaches of the Coal Oil Point Reserve provide habitat for the California
29 Least Tern; however, until recently, there had been no records of this species breeding
30 in the area for several decades. This species has been observed at the western end of
31 Devereux Slough and has been recorded foraging in the vicinity of the Project area (City
32 of Goleta 2004).

Invertebrate Special Status Species

Two local beetle species are federally listed as species of concern and are discussed below. They inhabit foredune habitat, and are therefore unlikely to reside in the immediate vicinity of the Project site (due to the armoring present at the base of the bluff). However, the species or suitable habitat is present in the vicinity of the Project site.

Globose Dune Beetle. The globose dune beetle (*Coelus globosus*) is a Federal species of concern. This is one of four species of dune beetles restricted to coastal sand dunes and beaches along the Pacific Coast. This species, similar to the other three, is strongly fossorial (burrowing). The globose dune beetle's distribution covers coastal dunes from northwestern Baja California Norte in Mexico to British Columbia (City of Goleta 2004). It is further restricted to foredunes immediately adjacent to the ocean and can tolerate frequent inundation from ocean tides. Globose dune beetles occur in foredune habitats along the base of the bluff south of the EMT eastward onto the Coal Oil Point Reserve; this species also occurs in foredunes around Bell Canyon and Tecolote creeks (City of Goleta 2004).

Sandy Beach Tiger Beetle. The sandy beach tiger beetle (*Cicindela hirticollis gravida*) is a Federal species of concern and occupies sandy beaches and coastal scrub habitats near estuaries in central and Southern California. The larvae utilize the moist margin of estuaries for burrowing. The adult beetles are carnivorous and feed on flies and other insects common to the tidal zone. The sandy beach tiger beetle has been observed around the mouth of Devereux Slough on the Coal Oil Point Reserve and at Goleta Beach. Suitable habitat also occurs in foredunes at the base of the bluffs along the Ellwood Mesa (City of Goleta 2004).

Monarch Butterfly. The monarch butterfly (*Danaus plexippus*) is a common winter migrant in Santa Barbara County known to occur within 1 mile of the Project site. Monarchs are included in the CDFG's Special Animals List, and overwintering sites are protected under the county's LCP and city of Goleta GP/CLUP as an ESH (City of Goleta 2006; Santa Barbara County 2002).

Butterfly aggregation sites within the city of Goleta's portion of Open Space Plan Area are referred to as the Ellwood Complex (CSLC 2006; City of Goleta 2004). The Ellwood Complex consists of six localized sites. All of these sites consist of large clusters or windrows of eucalyptus trees. Roosting monarch butterflies have not been observed at the Project site.

Estuarine and Riparian Special Status Species

Bell Canyon to the west of the Project site contains marsh habitats which qualify both as estuarine (due to the influence of the adjacent ocean) and freshwater (further upstream). Two special status species have been documented to reside in the area and are discussed below:

Southwestern Pond Turtle. The southwestern pond turtle (*Clemmys marmorata pallida*) is a California Species of Special Concern and is currently listed as a candidate for Federal protection. Historically, the southwestern pond turtle had a relatively continuous range along the Pacific slope drainages from southern Washington to Baja California. Habitat requirements for this species include still or slow-moving water and the availability of aerial and aquatic basking sites. The southwestern pond turtle is known to occur in Devereux Slough, Goleta Slough, and the Campus Lagoon at UCSB. There is potential for this species to occur in the middle and upper portions of Ellwood Canyon, Bell Canyon Creek, and Tecolote Creek (City of Goleta 2004).

Tidewater Goby. The tidewater goby (*Eucylogobius newberryi*) was federally listed as endangered in 1994 by the USFWS. It is a small estuarine fish reaching only 2 inches in length. Preferred habitat for this species includes lagoons, marshes, and tributaries with tidal influence between Del Norte County and San Diego County, California. The goby resides in coastal streams within 2 miles of the ocean and slow, shallow, brackish water. They usually inhabit water with salinities less than 10 ppt (City of Goleta 2004); however, they can tolerate salinities up to 60 ppt. This species feeds on small aquatic invertebrates and insect larvae. The majority of tidewater gobies live only one year, making this species highly sensitive to adverse environmental conditions during the breeding season. In the spring and summer of 1998, 1999, and 2002, dense populations of juvenile and adult tidewater gobies were present in the terminal lagoons and lower reaches of Tecolote Creek and Bell Canyon Creek (City of Goleta 2004).

Invasive and Non-Native Species

The giant reed (*Arundo donax*), an invasive species native to the Middle East, is apparent in some areas of the Project site and is believed to have been introduced to the area from upstream sources or via rafting. In particular, loosely distributed clumps of the reed are present in the vegetated areas just upslope from the shoreline armoring structures. The California Invasive Plant Council (CIPC) has ranked the giant reed as a species with “severe ecological impacts on physical processes, plant and animal communities, and vegetation structure” (CIPC 2006).

4.7.2 Regulatory Setting

Biological resources in and around the Project area are governed by a variety of Federal, State, and local laws and regulations. The relevance of these statutes to the proposed Project is described in this section. In addition, quantitative guidelines, standards, limits, and restrictions promulgated in the regulations form the basis for many of the criteria used to evaluate the significance of the proposed Project's impacts to biological resources.

Federal

Endangered Species Act

The ESA of 1973, as amended, establishes measures intended to ensure the protection and conservation of threatened and endangered species and the ecosystems on which they depend. See Section 4.6, Marine Biological Resources, for a complete description of this Act.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 is the cornerstone legislation addressing fisheries management in U.S. jurisdictional waters. See Section 4.6, Marine Biological Resources for a complete description of this Act.

Coastal Zone Management Act

This Act requires that all Federal activities be consistent to the maximum extent practicable with the enforceable policies of each affected State's coastal zone management program. See Section 4.6, Marine Biological Resources for a complete description of this Act.

Migratory Bird Treaty Act and Executive Order 13186

The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nest, and requires harvests to be limited to levels that prevent overuse. Further, the MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase, or barter, of any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11).

1 State

2 *California Coastal Act*

3 The California Coastal Act protects and restores coastal zone resources. See Section
4 4.6, Marine Biological Resources for a complete description of this Act.

5 *Porter-Cologne Water Quality Control Act*

6 The Porter-Cologne Water Quality Act provides a comprehensive water-quality
7 management system for the protection of California waters and regulates the discharge
8 of oil into navigable waters. See Section 4.5, Hydrology, Water Resources, and Water
9 Quality, for a complete description of this Act.

10 *Water Quality Control Plan*

11 The proposed Project falls under the jurisdiction of the Central Coast RWQCB, which
12 has established a Water Quality Control Plan for the coastal watersheds of San Luis
13 Obispo, Santa Barbara, and Monterey counties. See Section 4.5, Hydrology, Water
14 Resources, and Water Quality, for a complete description of this Act.

15 *California Endangered Species Act*

16 The CESA parallels the main provisions of the Federal ESA and is administered by the
17 CDFG. See Section 4.6, Marine Biological Resources, for a complete description of this
18 Act.

19 Local

20 *The City of Goleta GP/CLUP/Coastal Land Use Plan*

21 The Goleta GP/CLUP has established policies relating to protecting biological resources
22 in the city limits in the Open Space and Conservation Elements. These policies focus
23 on protection of environmentally sensitive habitat areas.

24 *The UCSB 1990 Long Range Development Plan*

25 The 1990 UCSB Long Range Development Plan (LRDP) was established to identify the
26 physical development necessary to achieve the Campus' academic goals and provide a
27 land use plan to guide the development of future facilities. The LRDP is also intended
28 to respond to the provisions of the California Coastal Act of 1976, with respect to the
29 preparation of Long Range Development Plans for Campuses in the Coastal Zone. The
30 LRDP specifies policies for protecting biological resources at the campus. These

policies include the identification of environmentally sensitive habitat areas and active management of these areas. In particular, campus code §30240(a).20 states that biological resources studies shall be performed prior to any bluff access or trail improvement projects on North and West Campuses and at Coal Oil Point to ensure protection of any sensitive biological resources that may be present on site.

4.7.3 Significance Criteria

Impacts to terrestrial biological resources would be considered significant if the proposed Project results in:

- The potential for any part of the population of a threatened, endangered, or candidate species to be directly affected or if its habitat is lost or disturbed;
- Any “take” of a Federal- or State-listed endangered, threatened, regulated, fully protected, or sensitive species;
- Prolonged disturbance to, or destruction of, the habitat (or its functional habitat value) of a species that is recognized as biologically or economically significant in local, State, or Federal policies, statutes, or regulations;
- A net loss in the functional habitat value of a sensitive biological habitat, including salt, freshwater, or brackish marsh; marine mammal haul-out or breeding area; eelgrass; river mouth; coastal lagoon or estuary; seabird rookery; or Area of Special Biological Significance;
- Permanent change in the community composition or ecosystem relationships among species that are recognized for scientific, recreational, ecological, or commercial importance;
- Permanent alteration or destruction of habitat that precludes reestablishment of native biological populations;
- Potential for the movement or migration of fish or wildlife to be impeded; or
- A substantial loss in the population or habitat of any native fish, wildlife, or vegetation or if there is an overall loss of biological diversity. Substantial is defined as any change that could be detected over natural variability.

4.7.4 Impact Analysis and Mitigation

Impact TBIO-1: Short-Term Construction Impacts to Biological Resources

Construction activities associated with installation of underground cables, may impact existing wetlands along the project access road (Potentially Significant, Class II).

Impact Discussion

Project construction in the area involves two components, (1) upgrading the existing 6-inch line to accommodate the addition of two internal 2-inch lines and (2) installation of subsurface cables for power and system control. Pipeline excavation would occur in the vicinity of the 12th tee of Sandpiper Golf Course, a highly disturbed area of limited habitat value, with the exception of possible use by raptors for foraging. Use of this area would be expected to include golfing and recreation, and the habitat value is therefore judged to be of similar negligible value. Further, only areas near the ends of the 6-inch pipeline would be affected as construction procedures entail opening both ends of the pipeline and sliding the two internal 2-inch pipelines inside. Excavation of cable trenches and installation of power and system control lines would take place along the PRC 421 access road right of way, an area which borders three small known wetlands. Impacts to native species and habitats could occur through disturbance to wetland habitats and associated plant and wildlife species by trenching, deposition of spoils, and operation of heavy equipment. Impacts to special status species are not expected as a result of these construction activities; however, incidental disturbance by equipment, indirect construction effects, and impacts from accidental fuel or oil releases are possible.

Mitigation Measures

MM TBIO-1a. Locate Power Cables and Pipeline Outside Wetland Areas. To the maximum extent feasible, Venoco shall locate new power cables and pipeline repair activities outside existing wetland areas along the access road. In order to protect adjacent small wetlands from disturbance, the inland edge of the access road shall be fenced prior to commencement of construction activities. Any intrusion of construction activities into this area shall be performed under the supervision of the biological monitor.

MM TBIO-1b. Project and Biological Monitors. Venoco shall retain both a project monitor to supervise pipeline and cable installation and other activities and a city-approved biologist to oversee habitat restoration and enhancement activities. The project monitor shall ensure that damage to any sensitive wetland habitat within or adjacent to construction zones is minimized. The biologist shall design and supervise habitat restoration and enhancement activities required under MMs TBIO-1c and TBIO-1f below.

The Applicant shall contract with a County-approved biologist (project biologist) that would be required to be present when the construction crosses sensitive biological areas.

The project biologist and the project engineer shall clearly designate “sensitive resource zones” on the project maps and construction plans. Sensitive resource zones are defined as areas where construction would be limited to a 15- to 30-foot corridor, depending on the particular construction requirements, to avoid impacts to special status biological resources.

The Applicant shall bore under any drainages that are identified as existing or potential habitats for special status biological resources.

Work shall be limited to the non-flowing seasons (typically from June to September) if trenching is used for those drainages that are not habitats for special status biological resources.

Any disturbed vegetation or biological habitats shall be restored with the native species as soon as feasible after the pipeline construction. As much as feasibly possible, salvaging and replanting of vegetation shall be done. The salvaging and replanting shall be at the direction of the project biologist.

All machinery shall be stored and fuelled in designated locations at least 100 feet away from any sensitive habitats. Heavy equipment and construction activities shall be restricted to the defined construction ROW. Vehicles and personnel shall use existing access roads to the maximum degree feasible.

Drainages and any riparian areas should be prohibited from disposal or temporary placement of excess fill. All equipment used in or near drainages shall be clean and free of leaks and/or grease. Emergency provisions shall be in place at all drainage crossings prior to the onset of construction to deal with accidental spills.

MM TBIO-1c. Restoration. Venoco shall restore any plant communities disturbed by Project construction activities as soon as feasible. Salvaging and replanting of existing native vegetation shall be undertaken as much as feasible and only native vegetation and seeds shall be planted in project restoration areas.

MM TBIO-1d. Protect Stockpiles of Excavated Material. In addition to BMPs identified in the SWRCB 410 certification, materials excavated in order to install the underground cables shall be stockpiled in such a way that they will not inadvertently spill into or be washed into wetland areas.

MM TBIO-1e. Maintain Equipment. All equipment used on site shall be maintained such that no leaks of oil, fuel, or vehicle residues will take place. Provisions shall be in place to remediate any accidental spills. All equipment shall only be stored in equipment laydown areas next to the EOF, as specified in previous sections.

MM TBIO-1f. Biological Enhancement Activities. Existing native habitats within 100 feet of the proposed trenching activities shall be enhanced in terms of their biological value through removal of invasive, non-native species and the planting of appropriate native species. Enhancement activities are to include removal of the non-native giant reed (*Arundo donax*) and other invasive species identified by the Project biologist. Hand-removal of above-ground stalk and rhizome biomass shall be undertaken to prevent damage to adjacent native plants.

Rational for Mitigation

Implementation of MMs TBIO-1a through TBIO-1f would reduce short-term construction related impacts to onshore biological resources by protecting sensitive resources in the immediate Project area, providing for construction supervision, and requiring restoration-enhancement of impacted habitats.

Residual Impacts

After implementation of MMs TBIO-1a through TBIO-1f, impacts to terrestrial biological resources from short-term construction activities would be mitigated to a less than significant level.

Impact TBIO-2: Oil Spill Impacts to Biological Resources

An accidental oil spill and subsequent cleanup efforts would potentially result in the loss or injury of threatened, endangered, or candidate species such as the Western Snowy Plover; the loss or degradation of functional habitat value of sensitive biological habitats such as coastal wetlands; or cause a substantial loss of a population or habitat of native fish, wildlife, or vegetation (Significant, Class I).

Impact Discussion

An oil spill could occur from Project components including the wells, separation equipment, caissons, pipelines, or transportation methods (including Line 96, the EMT tanks and loading lines, and barge Jovalan) and cause a potentially significant impact to biological resources. These impacts could include (1) the loss or injury of Federal- or

1 State-listed wildlife species, (2) the loss or degradation of upland, wetland, aquatic, or
2 sensitive biological habitat (including salt, freshwater, or brackish marsh; river mouth;
3 coastal lagoons, estuaries, and breeding habitat designated as critical for the Western
4 Snowy Plover), or (3) injury to plants and terrestrial and aquatic wildlife through direct
5 toxicity, smothering, or entrapment from cleanup efforts. Small leaks or spills that would
6 be contained and remediated quickly could have minor or negligible impacts on
7 biological resources while large spills have the potential to spread onto larger surface
8 areas and may increase the potential for long-term impacts on biological resources.
9 Any large spill from the onshore pipeline would require subsequent cleanup. The
10 cleanup operations and repair would result in impacts on habitat in the vicinity of the
11 proposed Project, with the extent of disturbance determined by the magnitude of the
12 spill.

13 Spills from activities from the wells, caissons, pipelines near or on the beach, the EMT
14 loading lines, barge Jovalan, or disturbances resulting from cleanup efforts within the
15 sandy beach and foredune habitats have the potential to affect the Western Snowy
16 Plover and California Least Tern, especially if a spill were to occur during the breeding
17 seasons for these species. Western snowy plovers utilize Devereux Slough and the
18 adjacent beaches to the west as wintering and nesting sites. Proposed critical habitat
19 for the Western Snowy Plover would include Devereux Beach. Effects of an oil spill in
20 this area during the breeding season would potentially increase mortality of nesting
21 plovers, chicks, and fledglings depending on the timing of the spill. A spill would also
22 contaminate or increase mortality of invertebrates that are forage material for the plover,
23 therefore resulting in indirect impacts on individual plovers and/or breeding success.
24 Western snowy plover populations have been decreasing throughout California;
25 however, the population at Coal Oil Point Reserve has increased in recent years due to
26 successful management efforts by the reserve's staff and volunteer docents (City of
27 Goleta 2004). An accidental oil spill and cleanup activities would potentially interfere
28 with the restoration efforts to improve the status of the species and degrade proposed
29 critical habitat. An oil spill and cleanup activities could also impact the foraging activity
30 and habitat for the California Brown Pelican. Other sensitive beach area species
31 potentially affected by a spill include the globose dune beetle, the sandy tiger beetle,
32 and the tidewater goby in the Bell Canyon and Tecolote Creek marshes.

33 Similarly, spills from activities from the wells, caissons, pipelines near or on the beach,
34 the EMT loading lines, barge Jovalan, or disturbances resulting from cleanup efforts
35 within areas coastal estuaries such as Tecolote Creek and the Devereux slough could
36 impact sensitive coastal wetland habitats and dependent species. See the EMT EIR for

1 a more complete discussion of potential impacts to regional wetland habitat areas from
2 an oil spill.

3 A rupture in the proposed 2-inch pipelines connecting Well 421-2 to Well 421-1 would
4 likely be contained within the 6-inch pipeline and detected at the control facility where a
5 proper response would be initiated. However, if a spill was not contained, it would likely
6 flow downhill through the coastal bluff scrub habitat and potentially onto the upper
7 intertidal and/or into marsh areas adjacent to the site (either at the terminus of the
8 access road or Bell Canyon). Alternatively if the spill occurred along the western portion
9 of the pipeline, oil would flow into Bell Canyon Creek. Due to the area's topography,
10 most spills from this portion of the pipeline with sufficient volume to have overland flow
11 would potentially affect the coastal bluff scrub, marsh, dune, and marine habitats.
12 Impacts from an oil release from Line 96 would depend on the location of the release. A
13 release from the western end of the line could impact sensitive resources in Bell
14 Canyon Creek. A release from the northern length and first segment of the eastern
15 length of the pipeline runs along Hollister Avenue and Pacific Oaks Road. A release
16 along these lengths would only impact highly disturbed areas of limited habitat value.
17 However, a release along the final length of the pipeline, near the EMT and from the
18 EMT would impact resources in the Ellwood-Devereux Open Space.

19 The effects of spilled oil on terrestrial biological resources would depend on factors such
20 as the physical and chemical properties of the oil, specific environmental conditions at
21 the time of the spill, and the species present. Certain types of communities would be
22 more severely affected by an oil spill than others. Salt or fresh water marshes would be
23 most sensitive because the biological activity is concentrated near the soil or water
24 surface where oil would be stranded. Oil could also be potentially widely dispersed by
25 stream or tidal flow, depending on season and meteorological conditions.

26 An oil spill would impact vegetation both directly and indirectly. Direct effects include
27 smothering of plants that would reduce the availability of water, nutrients, and oxygen to
28 the plant root system. This would potentially result in reduced growth or death.
29 Vegetation recovery would potentially be slow in areas of oiled soils because of
30 lingering toxicity or altered soil characteristics. Impacts of cleanup might be more
31 substantial than the effect of the spilled oil, depending on the remediation method.
32 Clearing or grading would potentially be required to provide access to ruptured pipelines
33 and oiled vegetation; soils would likely need to be removed and disposed.

Direct impacts on wildlife from oil spills include physical contact with oil, ingestion of oil, and loss of food and critical nesting and foraging habitats. Aquatic reptiles, amphibians, and birds would be the most vulnerable to oil spills. For any impacted sensitive wildlife species, the level of impact would depend on the size and location of the spill, the amount of habitat affected, and the number of individuals and species affected. Impacts on sensitive wildlife species could be short to long term depending on the amount of oil spilled, environmental conditions at the time, containment and cleanup measures taken, and length of time for habitat and sensitive species recovery.

Mitigation Measures

Venoco currently maintains an Emergency Action Plan (EAP) that addresses spill response actions to be completed in the event of a “significant event” (Venoco 2006). Where a spill or cleanup has the potential to result in impacts on sensitive biological resources or the loss of native vegetation, implementing the following updates to the Venoco EAP would reduce impacts to onshore biological resources.

MM TBIO-2a. EAP Measures Regarding Protection of Biological Resources.

The EAP shall be revised and updated to address protection of sensitive biological resources disturbed during an oil spill or cleanup activities. The revised EAP shall, at a minimum, include: (1) specific measures to avoid impacts on Federal- and State-listed endangered and threatened species and ESHAs during response and cleanup operations; (2) identify, where feasible, low-impact, site-specific, and species-specific techniques; (3) identify standards of a spill response personnel training program; and (4) funding for and coordination of efforts with the Goleta Park Department and the staff of the Coal Oil Point Reserve to ensure that these organizations have sufficient resources and training to address issues arising from major and minor oil spills.

MM TBIO-2b. EAP Measures Regarding Habitat Protection and Restoration.

The EAP shall be revised and updated to address revegetation of any areas disturbed during an oil spill or cleanup activities. The plan update shall include: (1) preemptive identification of access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas; (2) stipulations for development and implementation of site-specific habitat restoration plans and other site-specific and species-specific measures; (3) identification of sources for restoration Project implementation (e.g., restoration contractors, seed vendors, native plant nursery facilities, academic institution support); (4) procedures for timely re-establishment of vegetation; (5) monitoring procedures and minimum success criteria to be satisfied for restoration areas; and (6) funding for and coordination efforts with the Goleta Park Department and the staff of the Coal Oil Point Reserve to ensure that these organizations have

sufficient resources and training to address issues arising from major and minor oil spills.

Rationale for Mitigation

MM TBIO-2a would provide greater specificity to the EAP by planning for targeted efforts designed to minimize impacts of remediation on special status species and their habitats, identifying specific methodologies to reduce impacts from an oil spill, and minimizing the use of procedures which have the potential to cause more damage to a sensitive habitat than the oil spill itself. This measure would also permit training and provide funding for the two understaffed agencies most responsible for oversight of the sensitive biological resources potentially affected by a Project-related oil spill.

MM TBIO-2b would ensure that restoration efforts after an impacting event are undertaken efficiently and effectively by establishing appropriate plans for mitigating impacts on local populations of sensitive wildlife species and to restore native plant and animal communities to pre-spill conditions. It would also include preemptive identification of access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas. Assistance and training would be provided to the two agencies with management authority for wetlands and beaches potentially affected by such a spill.

Residual Impacts

An oil spill that potentially results in impacts on Federal- or State-listed wildlife species, such as the Western Snowy Plover and California Least Tern, cannot be reduced below significance criteria. Although implementation of MM TBIO-2a and TBIO-2b would reduce impacts on plant communities and common wildlife species, and could reduce impacts on Federal- and State-listed species and other sensitive plant and wildlife species and their habitats, it would not entirely eliminate the risk of spill impacts to these and other biological resources.

MM TBIO-2a would require Venoco to undertake a planning effort addressing contingencies for an oil response. Contingencies would be targeted and focused on preserving species of concern and their habitat and other plant and wildlife communities to the maximum extent practicable. MM TBIO-2b would provide greater information and capabilities on how to develop and implement habitat restoration plans needed to effectively restore native plant and animal communities to pre-spill conditions and provide monitoring effectiveness criteria. These would help minimize potential oil spill-induced impacts on biological resources including sensitive species, sensitive species

habitat, the nearby dune swale pond, surrounding wetland areas, and Devereux Slough. Revegetating with native species in areas where vegetation is removed or otherwise impacted by a spill or cleanup activities would potentially reduce significant impacts on native vegetation and wildlife habitats to below significance criteria; however, large spills that result in impacts to designated (or proposed) critical habitat, wetland and aquatic habitats, and biota, including Federal- and State-listed species would remain significant even after mitigation.

Impacts Related to Future Transportation Options

For the purposes of this impact analysis, it is assumed that Line 96 and the EMT would be used to transport crude oil recovered from PRC 421 using the barge Jovalan to ship the oil to a Los Angeles or San Francisco Bay area refinery through approximately the year 2013 or beyond. However, as discussed earlier in this EIR (Sections 1.2.4, Related Ellwood Area Oil Projects, 2.4.2, Transportation, and 3.3.6, Transportation Sub-Alternative Options), several options exist for future transportation of oil from the Project, each with different potential impacts to terrestrial biological resources. These include ongoing use of the EMT through approximately 2013, use of a pipeline to Las Flores Canyon, and trucking of oil to Venoco's ROSF Facility 35 miles to the south and subsequent transport to Los Angeles via pipeline. The potential terrestrial biological resources impacts from transportation using the existing EMT system are fully described above (see Impact TBIO-2).

However, because the timing and exact mode of transportation of produced oil after the initial five years of Project operation are speculative at this point in time, the potential impacts of use of a pipeline or trucking are only briefly summarized here and are fully disclosed as part of the alternatives analysis (Section 4.7.5, Impacts of Alternatives). If neither of these options is permitted or available by the cessation of operation of the EMT, production from PRC 421 would be stranded, at least temporarily, until an alternative transportation mode is approved and becomes available.

The operation of an 8.5-mile pipeline from the EOF to the AAPL at Las Flores Canyon is not expected to create impacts to terrestrial biological resources (see Impact TBIO-1 for construction related impacts). Although the timing of construction of the new pipeline is uncertain, transportation of oil via pipeline could commence as early as 2009 or 2010, resulting in 10 or more years of transportation by pipeline. Although pipelines are generally the safest method available for the transportation of crude oil, spills could occur through accidental damage to the pipeline caused by natural (e.g., seismic activity, flooding) or man made causes (e.g., construction activity, valve failure).

However, because the pipeline would be new, include the most recent safety technologies, and would only be in service for approximately 12 years serving PRC 421-1 production, the very remote potential for spills to occur from this pipeline would be considered less than significant (see Section 4.2, Safety). Any potential for impacts would be further reduced by the application of required habitat protection and clean-up measures which would be addressed in the EAP and SWPPP, as required for the construction and operation of this pipeline.

Future transportation of oil via a combination of trucking for 35 miles from the EOF to the ROSF and via existing pipeline south to Los Angeles would incrementally increase the potential for spills. However, under the proposed Project, trucking would commence no earlier than 2013, and would involve not more than 2 trucks per day carrying 160 barrels of oil each, declining to 1 truck per day in the later years of Project operation (see Section 3.3.6, Transportation Sub-Alternative Options, Table 3-2). Impacts to biological resources from trucking are considered remote, because the potential for an accident and subsequent crude oil spill is of extremely low probability over the Project's 12 year production horizon (see Section 4.2, Safety). Even in the event of such a spill, potential impacts to biological resources would likely be negligible due to the even more remote possibility of oil entering a drainage and affecting biological resources.

Similarly, the shipment of oil via existing pipeline which already transports substantial amounts of crude oil would not be expected to measurably increase the potential for impacts to terrestrial biological resources because the failure rate for such pipelines is a function of pipeline length rather than increased throughput. The pipelines would not be modified by the addition of PRC 421 crude oil; therefore, the spill frequencies for the respective pipeline would be unchanged by the proposed Project.

Table 4.7-2. Summary of Terrestrial Biological Resources Impacts and Mitigation Measures

Impact	Mitigation Measures
TBIO-1: Short-Term Construction Impacts to Biological Resources	TBIO-1a. Locate Power Cables and Pipeline Outside Wetland Areas.
	TBIO-1b. Project and Biological Monitors.
	TBIO-1c. Restoration.
	TBIO-1d. Protect Stockpiles of Excavated Material.
	TBIO-1e. Maintain Equipment.
	TBIO-1f. Biological Enhancement Activities.
TBIO-2: Oil Spill Impacts to Biological Resources	TBIO-2a. EAP Measures Regarding Protection of Biological Resources.
	TBIO-2b. EAP Measures Regarding Habitat Protection and Restoration.

4.7.5 Impacts of Alternatives

No Project Alternative

Under this Alternative, there would be no production at PRC 421, and the facilities would be decommissioned. Under the No Project Alternative the existing wells at Pier 421 would remain shut-in and equipped with subsurface safety valves. There would be no oil production from PRC 421. As such, the No Project Alternative would avoid the majority of impacts to terrestrial biological resources associated with production, transfer, and transportation of crude oil produced from PRC 421. Specifics of decommissioning would be addressed in an Abandonment and Restoration Plan and impacts from decommissioning would be fully assessed under applicable environmental documentation (an MND or EIR).

However, as noted in Section 2.1.1, Project History, the CSLC has concerns about the potential for pressure to build up in the reservoir, which has an unknown potential to allow oil to escape from wells that were abandoned in the 1940s and 1950s. This concern is based on observations of increased reservoir pressure following the 1994 shut-in of the PRC 421 wells; no evidence exists that leaks have occurred or are likely to occur. If repressurization of the reservoir caused a release of oil, sensitive onshore biological resources such as the Western Snowy Plover, California Brown Pelican, and California Least Tern could be impacted. The extent of this impact is difficult to ascertain given the current available data. Although available data indicates a build-up in field pressure, no seeps, leaks, or spills have been identified with this pressure increase and no data is available that identifies at what pressure older wells are considered likely to leak. If pressure build-up resulted in accidental large-scale releases, impacts to biological resources, as with any other oil spill, could be significant. However, insufficient data exist to quantify the actual potential for such leaks to occur, their exact location or the size of such leaks; therefore it would be speculative to identify either the frequency or potential severity of such impacts at this time.

No Project Alternative with Pressure Testing

Under this Alternative, pressure testing would be conducted over a 6- to 12-month period and oil produced during pressure testing would be processed at the EOF instead of in the surf zone. No major construction would occur (e.g., trenching, caisson repair) and no long production is anticipated. Therefore, potential impacts to onshore biological resources resulting from a potential spill would be less than described for the proposed Project. However, the potential still exists for a release of oil to occur during pressure

1 testing and potential impacts to biological resources would therefore continue to exist
2 and be potentially significant. MMs TBIO-2a and TBIO-2b would be required; however,
3 impacts would remain significant. As with the No Project Alternative, if production is not
4 approved, eventual decommissioning of these facilities would require submittal of a
5 decommissioning plan to the CSLC and the city of Goleta. The decommissioning plan
6 would be subject to further environmental review.

7 Onshore Oil Separation at the EOF

8 Under this Alternative, construction activities associated with the proposed Project
9 would largely remain the same; however, produced oil and water would be transported
10 directly to the EOF for separation instead of such activities occurring at Pier 421-2. In
11 addition, Pier 421-1 would not be required for water re-injection and the
12 decommissioning of Pier 421-1 would be accelerated. The accelerated
13 decommissioning would require submittal of a decommissioning plan for Pier 421-1 to
14 the CSLC and the city of Goleta within approximately 6 months of approval of this
15 Alternative. The decommissioning plan would be subject to further environmental
16 review. Therefore, the potential for a release from separation equipment and
17 subsequent oil spill into the ocean would be reduced under this Alternative; however,
18 the potential for a large oil spill to occur from Well 421-2 still remains, along with a spill
19 from the EMT or Barge Jovalan, and impacts to onshore biological resources would
20 remain as described for the proposed Project. MMs TBIO-1a through TBIO-1f and
21 TBIO-2a and TBIO-2b would be required; however, the significance of the impact would
22 not be reduced.

23 Recommissioning Using Historic Production Methods

24 Under this Alternative, historic production methods involving an above-ground pump
25 and gas-fired internal combustion engine would be used to pump oil through Well 421-2
26 and water would still be conveyed to Pier PRC 421-1 for re-injection. Produced water
27 and oil from Pier 421-2 would be separated using a new free-water knockout system.
28 Therefore, the potential for a well blowout at Pier 421-2 and subsequent large oil spill
29 into the ocean from Pier 421-2-2 would be the same as described for the proposed
30 Project. MMs TBIO-1a through TBIO-1f and TBIO-2a and TBIO-2b would be required;
31 however, the significance of the impact would not be reduced.

32 Re-injection at Platform Holly

33 Under this Alternative, production would resume at PRC 421 as described under the
34 proposed Project; however, water would be sent to Platform Holly, via the EOF. Pier

421-1 would not be required for water re-injection and the decommissioning of Pier 421-1 would be accelerated. The accelerated decommissioning would require submittal of a decommissioning plan for Pier 421-1 to the CSLC and the city of Goleta within approximately 6 months of approval of this Alternative, and would be subject to further environmental review. As described in Section 3.3.5, Re-injection at Platform Holly, this Alternative would require minor alterations to Platform Holly to permit use of annulus gas for power, which are not expected to result in impacts to terrestrial biological resources. All other aspects of the proposed Project would be the same. Therefore, impacts to terrestrial biological resources would be similar to those described for the proposed Project.

Transportation Sub-Alternative Options

Pipeline Sub-Alternative

This method of crude oil transportation would involve the construction of an onshore 6-inch-diameter crude-oil pipeline from the EOF to the AAPL at Las Flores Canyon. Although pipelines are generally the safest method available for the transportation of crude oil, spills could occur through accidental damage to the pipeline caused by natural (e.g., seismic activity, flooding) or man made causes (e.g., construction activity, valve failure). However, because the pipeline would be new, contain all of the most recent safety features and would serve PRC 421 for only approximately 12 years, impacts to Terrestrial Biological Resources from operation of this pipeline would be less than significant (see Section 4.2, Safety). However, short-term construction impacts could create potentially significant effects as discussed below.

Impact TBIO-3: Pipeline Construction Impacts Rare, Threatened or Endangered Species

Pipeline construction could would potentially result in the loss, injury or “take” of threatened, endangered, or candidate species such as the Southern Steelhead, California red-legged frog and tidewater goby due to accidental releases of drilling fluids (“frac-outs”) into Gaviota Coast streams and creeks (Potentially Significant, Class II).

Impact Discussion

Impacts of pipeline construction on Federal- or State-listed rare, threatened or endangered animal species would primarily be related to the accidental release of drilling fluids during horizontal directional drilling under creeks known to support

1 populations of such species. Such accidental releases have the potential to result in the
2 killing or “take” of rare, threatened or endangered species. Drilling fluid is a lubricant
3 used during exploratory drilling and commonly contains bentonite, which when released
4 into aquatic environments can injure or kill fish, amphibians and other wildlife, along with
5 smothering goby nests, eggs and larvae. Further, such releases can cut off oxygen
6 supplies to mud dependent species, or cover gavels for potential nest sites. Drilling
7 fluids may also alter water PH and may have added constituents with some potential for
8 toxicity (Storrer 2007; CDFG 2007).

9 Because of its fine particulate composition, bentonite becomes suspended when
10 released into an aqueous environment. One potential effect of a release into an aquatic
11 habitat is the mechanical occlusion of gills of fish and larval amphibians. In addition,
12 egg masses of fish and amphibians, should they become covered with bentonite, may
13 be unable to respire. Secondary impacts can result from the containment and recovery
14 of drilling fluids released into both upland and wetland habitats. These can include
15 trampling of vegetation, minor alteration to stream banks, and disturbance to surface
16 archaeological resources (Storrer Environmental Services 2002).

17 Lost drilling fluid returns are also of concern. The term “lost returns” applies to
18 instances where circulation of drilling fluids become imbalanced or cease entirely. The
19 loss of circulation can be detected by tracking the volume of drilling fluids injected into
20 the bore hole that does not return to either the entry or exit pits, or is not found on the
21 surface in association with a frac-out. A reduction in volume or complete loss of
22 circulation often indicates that a frac-out had occurred. However, in certain notable past
23 cases such as Tajiguas Creek for the Level III fiber optic cable project, drilling
24 proceeded for several days without any fluids returning to the entry or exit pits and
25 absent any evidence of a surface release. This meant that in excess of 20,000 gallons
26 of drilling fluids remained unaccounted for. Other examples of persistent, large volumes
27 of lost drilling fluids for the Level III project included bores on Padaro Lane, west of
28 Loon Point, and adjacent to Wallace Avenue (Storrer Environmental Services 2002). In
29 addition, one such Horizontal Directional Drill (HDD) bore on the Santa Ynez River lost
30 over 300,000 gallons of Bentonite which was unaccounted for and appears to have
31 either found its way into the river, groundwater of surrounding soils or rock with
32 unknown consequences for wildlife and surface and groundwater quality (CDFG 2007).

33 In addition to direct ecological damage and possible “take” of species associated with
34 frac-outs, several concerns also arise regarding lost returns. First, the loss of circulation
35 could indicate that a frac-out had occurred, but had not been detected. For larger bores

across major drainages, dense vegetation, terrain, and access constraints could limit frac-out surveillance capability. Under certain conditions, drilling fluids could and in some cases during the Level III project did, migrate several hundred yards from the alignment. Such releases may not be detected during routine frac-out patrols, because surveillance is typically focused on the bore path and its immediate vicinity. The possibility exists that fluids could accumulate in subterranean voids or interstices and could suddenly burst to the surface, once the volume and pressure reached a critical threshold. Under these circumstances, allowing drilling to proceed in spite of the loss of circulation could magnify the consequences of a frac-out if one eventually occurred.

Secondary consequences of large accumulations of drilling fluids could also include soil instability. This would be a serious concern for highway and railroad rights-of-way. Drilling fluids might also enter aquifers which could affect water quality, recharge, and recovery of groundwater reserves.

The proposed pipeline would cross and potentially impact three creeks that are known to contain potential habitats for the endangered southern steelhead, the California red-legged frog and the tidewater goby. Potentially impacted habitats which support one or more of these species include Tecolote, Dos Pueblos and El Capitan Creeks.

As discussed above, while the proposed project would employ advanced horizontal directional drilling to attempt to avoid impacts to such species, this technology is not without risk. Previous projects employing this construction technique in the County have experienced relatively high rates of accidental release of drilling fluid or mud as well as lost returns of such fluids. Such frac-outs or lost returns can occur due to a number of causes such as shallow drilling depths, use of excessive pressure or the presence of fractured rock or soil underneath the stream. Frac-out rates as high as 30 to 50 percent have been recorded, including one of which resulted in a major release of drilling fluid into El Capitan Creek, with associated potential impacts to wildlife (Storrer 2006; CDFG 2007).

Mitigation Measure

MM TBIO-1a would reduce the potential for impacts to rare, threatened, and endangered species during pipeline construction, in addition to the following measures:

MM TBIO-3a. HDD Drilling Plan. Venoco shall prepare and implement a HDD plan which provides data, analysis and recommendations on how to minimize the potential for frac-outs. This HDD Plan shall recommend locating proposed pipeline crossings of perennial streams in areas with low

potential for fractured subsurface material. In addition, the plan shall set forth standards for adequate drilling depths and use of the minimum necessary pressure to avoid frac-outs. Finally, the plan shall also contain provisions for monitoring to address both frac-outs and potential lost returns.

MM TBIO-3b. Prepare Frac-out Contingency Plan. Venoco shall prepare a frac-out contingency plan. This plan shall include provision for stockpiling of necessary clean-up and containment materials adjacent to creeks, include requirements that a vacuum truck be present for HDD under all perennial streams and set forth clear frac-out training requirements, clean up procedures for all HDD work crews and biological protection and restoration measures to be following both during and after clean up.

Rationale for Mitigation

MM TBIO-1b would ensure that a qualified biologist is present to oversee and minimize damage from pipeline construction. MMs TBIO-3a and 3b would reduce or minimize the potential for frac-outs to occur based on location and drilling techniques and provide careful monitoring and oversight over HDD so that frac-outs are spotted at the earliest possible time.

Impact TBIO-4: Damage to or Disturbance of Sensitive Habitats from Pipeline Construction

Pipeline construction could result in impacts to sensitive habitats, riparian wetlands, and associated species from trenching, fuel spills and other pipeline construction-related activities (Potentially Significant, Class II).

Impact Discussion

Impacts to biological resources associated with pipeline construction include removal or degradation of vegetation and wildlife resources, particularly during trenching across streams and wetland areas. Impacts also include the accidental release of drilling fluids during HDD under creeks as discussed under Impact TBIO-3 above, along with the potential fuel spills from construction equipment.

For most of the route, the pipeline would be within or adjacent to existing roadways. Roadsides typically provide limited value for biological resources. This is especially true for the pipeline route that parallels Highway 101. Nevertheless, significant biological impacts would result from construction activities associated with trenching across numerous coastal drainages crossed by the pipeline, which have been identified by the state and county as environmentally sensitive. The proposed pipeline route would cross

1 numerous smaller drainages which could be impacted by direct pipeline trenching and
2 associated vegetation removal while at least three larger perennial drainages could be
3 impacted by HDD activities as discussed in Impact TBIO-3.

4 Potential fuel spills from construction equipment, though likely minimal in size, also have
5 the potential to affect biological resources from exposure to spilled oil or subsequent
6 cleanup activities. The primary concern would be spills that would potentially enter
7 creeks or drainages and affect wetland and aquatic species in the vicinity of the pipeline
8 route as well as downstream.

9 Mitigation Measures

10 Implementation of project BMPs and MMs TBIO-1b through 1f, 3a, and 3b would reduce
11 the severity of construction and fuel spill-induced impacts on biological resources in
12 addition to the following mitigation measure:

13 **MM TBIO-4. Sensitive Biological Habitat Protection.** The proposed pipeline and
14 associated construction activities shall be sited and designed to
15 minimize damage to sensitive native habitats. Where trenching is
16 employed to cross drainages and wetlands, to the maximum extent
17 feasible, pipeline easements and construction corridors shall be located
18 in previously disturbed areas and minimize disturbance to significant
19 native vegetation such as mature trees, wetland vegetation, etc.

20 Rationale for Mitigation

21 The pipeline route is mostly along the roads or crosses agricultural land. Major
22 drainages would be crossed via boring or directional drilling to avoid sensitive
23 resources. MMs TBIO-1b through 1f, 3a, and 3b would maximize avoidance of
24 sensitive areas. The project biologist would designate on maps, and supervise
25 crossings and work in areas where sensitive species could be located. This would
26 ensure that the workers are aware of the sensitive areas and that these areas are
27 avoided to the maximum extent feasible. MM TBIO-4b would reduce impacts on plant
28 communities and common wildlife species. Revegetating with native species in areas
29 where vegetation is removed or otherwise impacted by a spill or cleanup activities would
30 reduce significant impacts on native vegetation and wildlife habitats to below
31 significance criteria (Class II).

32 *Trucking Sub-Alternative*

33 Under this sub-alternative, production would resume at PRC 421 as described in the
34 proposed Project; however, recovered crude oil would be transported via tanker trucks

rather than by Barge Jovalan. Trucks would be loading at the EOF and unloaded at the Venoco Carpinteria Facility where crude oil would be transferred to an existing storage tank. Construction of truck loading and unloading facilities would be done within the existing facilities and would not be expected to impact biological resources.

Each tandem truck would hold approximately 160 barrels of oil. An estimated maximum of five trips per day would be required to transport crude oil to the ROSF in the initial year of production, decreasing to one trip per day by the last years of production.

Impacts to terrestrial biological resources from trucking would occur in the event of an accident that resulted in a spill, and from the slightly increased potential for wildlife mortalities resulting from increased truck traffic on the haul roads. Potential impacts to biological resources would likely be negligible, or less than significant, unless the spill were to enter drainages or streams where it could affect wetlands, aquatic, or riparian habitats and have the potential to move downstream. There are several major drainages and numerous minor drainages or roadside ditches along Highway 101 between the EOF and the Venoco Carpinteria Facility. However, the chances of a spill occurring during transport between these facilities are of very low probability and are discussed in Section 4.2.5, Safety, Impacts of Alternatives. The chances of a spill occurring and entering a drainage would be even less, and the biological sensitivity of the spill site would be less than that of the area in the vicinity of the EMT. Therefore, potential impacts related to a spill would be less than significant.

4.7.6 Cumulative Projects Impact Analysis

Impact TBIO-5: Cumulative Impacts to Biological Resources

Potential oil spills occurring as a result of recommissioning PRC 421 could result in contributions to cumulative biological resource impacts (Significant, Class I).

Potential oil spills occurring as a result of the proposed Project could result in contributions to cumulative biological resource impacts in the vicinity of the Project site. Section 3.4, Cumulative Projects, details projects in the surrounding area that could produce impacts to biological resources similar to those anticipated by the proposed Project.

Projects which could produce an increased risk of oil spill that could impact the same coastal areas as the proposed Project include the following (please refer to Table 3-3, Relevant Cumulative Projects):

- Cabrillo Port/BHP Billiton LNG International, Inc.;
- LNG Terminal at Platform Grace/Northern Star Natural Gas LLC;
- Carpinteria Field Redevelopment Project/Carone Petroleum Corp. and Pacific Operators Offshore Inc.;
- Paredon Project/Venoco;
- Ellwood Oil Development and Pipeline Project (Full Field Development)/Venoco;
- Platform Grace; and
- Development of additional 36 offshore Federal leases.

The two LNG Projects (Cabrillo Port/BHP Billiton LNG International, Inc. and LNG Terminal at Platform Grace/Northern Star Natural Gas LLC) involve the use of large tankers and support vessels which would introduce the risk of fuel spills into the marine environment, because they have dual-fuel engines that use the boil-off LNG and oil fuel. The Carpinteria Field Redevelopment, Paredon, and Full Field Development projects would involve increased offshore/near-shore drilling and associated crude oil transportation, which would also increase the risks of oil spills.

The Ellwood Full Field Development project would involve increased spill risks due to offshore drilling. The Full Field Development would involve abandoning the operations of the EMT and transporting oil by pipeline only. This would reduce the risks of a marine oil spill and associated biological resource impacts as the EMT and barge transportation would no longer be used.

The Platform Grace Project would include a resumption of oil production and an increase in vessel traffic with attendant risks of spills. Although the status of the 36 undeveloped Federal leases remains in litigation, development of these leases would result in additional exploratory drilling, increases in vessel traffic and potential oil spills to the marine environment that would have a cumulative effect alongside the proposed Project. The development of the Bonita, Rocky Point, Gato Canyon, Sword, and Cavern Point leases, in particular, would be most likely to overlap with proposed Project. All of these projects would exacerbate an already significant impact (Class I) associated with the proposed Project's risks of spills to the marine environment.

Mitigation Measures

None available.

1 Residual Impact

2 Each of these projects must meet regulatory requirements designed to reduce the
3 probability and consequences of accidental releases to the environment. However,
4 even the best designed and implemented MMs, such as safe design of the facilities, oil
5 spill contingency plans, training and drills, and availability of oil spill cleanup means,
6 cannot eliminate all risk of an oil spill. The proposed Project's contribution to cumulative
7 projects would remain significant.